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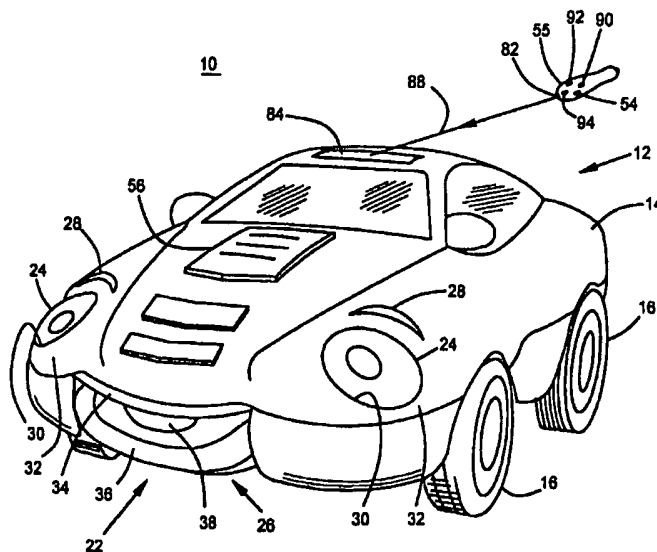
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(54) Title: MOBILE TALKING TOY HAVING MOVABLE FEATURES

**(57) Abstract**

A mobile toy (10) includes speech messages and movable features which may include a movable mouth (26), so that the toy (10) gives the illusion, at least to a pre-schooler, of the toy talking, and/or, otherwise, gives entertainment and amusement. Other features that may be made movable are eyes (24). The speech and movement of the feature(s) may be made independent of motion of the toy, or movement of the features dependent upon or synchronized with movement of the toy. The speech may be manually initiated or in response to motion of the toy or of the movable feature(s). The mobile toy (10) may be controlled by remote control or directly by controls on the toy activated in any suitable way; the toy may be self-propelled (by an electric motor or spring mechanism) or free-rolling. The toy in the preferred embodiments is a vehicle.

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## MOBILE TALKING TOY HAVING MOVABLE FEATURES

## BACKGROUND OF THE INVENTION

This invention disclosed herein relates generally to amusement devices that  
5 are moving toys (e.g. dolls, vehicles, animals and the like), and more particularly to  
wheeled toys that include an electronic circuit for producing audible content (e.g.  
talking, speech and the like) stored therein and have facial features (e.g. eyes, mouth  
and the like) that move.

10 There is a continuing need to produce and provide toys that have a high play  
value by including operating features and sound that are designed to amuse a child  
or children for extended periods of time. The invention disclosed herein provides  
such a toy.

Some examples of known toys that include sound are disclosed in US patent  
15 numbers 1,920,027 issued 7/25/1933 to Wilhelm; 2,324,774 issued 7/20/1943 to  
Henry; 3,293,794 issued 12/27/1966 to Ryan; 3,443,338 issued 5/13/1969 to Collins;  
3,660,932 issued 5/9/1972 to Raffeli et al.; 3,685,200 issued 8/22/1972 to Noll;  
4,207,704 issued 6/17/1980 to Akiyama; 4,579,540 issued 4/1/1986 to Ho;  
4,820,232 issued 4/11/1989 to Takahashi et al.; and 5,292,275 issued 3/8/1994 to  
20 Swisher et al.

## SUMMARY OF THE INVENTION

The invention provides in a mobile toy speech messages and movable  
features. In one embodiment, the movable features include a movable mouth, so that

the toy gives the illusion, at least to a pre-schooler, of the toy talking, and/or otherwise gives entertainment and amusement. Other features may be made movable, for example eyes.

The speech and movement of the features may be made independent of  
5 motion of the toy, or movement of the toy or the movable feature(s), dependent thereon, or synchronized therewith. The speech may be manually initiated, or in response to motion of the toy or the movable feature(s). The mobile toy may be controlled by remote control or directly by controls on the toy activated in any suitable way, and the toy may be self-propelled (by an electric motor or by a spring  
10 mechanism) or free-rolling. The toy in the preferred embodiments is a vehicle.

One embodiment of the present invention may be briefly described as: a speaking mobile toy including:

- a) a body portion supported by a plurality of rotatable wheel members, the body portion including a pair of eye members that are movably retained in a  
15 spaced relationship in the body, each eye member being movable between at least a first position and a second position, the body portion also having a mouth shaped opening, the mouth-like opening having at least one part being movable between positions defining an open mouth and a closed mouth;
- b) an electronic circuit which stores and generates sound signals  
20 representing at least one phrase of speaking content;
- c) a sound transducer coupled to and forming a part of the electronic circuit which sounds the speaking content in audible fashion;
- d) at least one control coupled to and forming a part of the electronic circuit in response to which the electronic circuit generates the sound signals; and

- e) at least one operating means associated with at least one selected wheel of the rotatable wheels, the operating means being operably coupled to each movable eye member and to the movable part of the mouth-like opening for movement thereof as the at least one selected wheel rotates during movement of the toy relative to a supporting surface.

The electronic current may respond to the at least one control to also cause the at least one selected wheel to rotate

A second embodiment may further include a powering means (e.g. DC motor, battery, etc.) and a wireless remote control (e.g. infra-red (IR), radio frequency (RF), sound and the like). The powering means is arrayed for providing directional movement of the toy relative to the supporting surface. The wireless remote may include the one control for the electronic circuit as well as directional controls for energizing the powering means.

Alternatively the one control (e.g. limit switch, proximity switch, light sensor, and the like) may be coupled to or actuated by movement of the eye member, mouth-like opening, a cam, and the like.

In addition to the above summary, the following disclosure is intended to be detailed to insure adequacy and aid in the understanding of the invention. These specific embodiments have been chosen to show at least one preferred or best mode of the present invention. These specific embodiments, as shown in the accompanying drawings, may also include diagrammatic symbols for the purpose of illustration and understanding.

### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 represents a pictorial view of a toy of the present invention showing a front view of the toy from a point that is above and to the right of the toy.

Fig. 2 represents a schematic of an operating means for the present invention.

5 Fig. 3 represents a schematic of an example electronic circuit for the present invention.

In the following description and in the appended claims, various details are identified by specific names for convenience. These names are intended to be generic in their application while differentiating between the various details. The  
10 corresponding reference numbers refer to like members throughout the several figures of the drawings.

The drawings accompanying and forming a part of this specification disclose details of construction for the sole purpose of explanation. It is to be understood that structural details may be modified without departing from the concept and principles  
15 of the invention as claimed. This invention may be incorporated into other structural forms than shown.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to Figs. 1 through 3, one preferred embodiment of a mobile toy of  
20 the present invention is generally identified as 10. In this embodiment, the toy is depicted as a land vehicle 12, such as a roadster, sport car, and the like. The vehicle 12 includes a body portion 14 that is shaped or molded from a suitable material such as a thermoplastic. The body portion 14 is supported by a plurality of wheels 16, in a conventional manner. In this first embodiment at least one of the wheels 16 is

preferably powered by a motor 18 and gear train 20 arrangement. One non-limiting example of a motor 18 and gear train 20 arrangement is schematically depicted in Fig. 2. In this preferred embodiment, a front end 22 of the body portion 14 is arrayed with facial-like features such as eyes 24, a mouth-like opening 26, eyebrows 28 and the like. The eyes 24 are set into a pair of apertures, recesses, or cavities 30 that are formed therein in a spaced relationship and at selected positions such as in the fenders 32. Each of the cavities 30 is sized and shaped for allowing the eye or eye-like member 24 to be rotatably retained therein and movable in at least one direction from a selected first position to a selected second position. The distance between the first position to the second position should be sufficient for easy discernment by and stimulation of at least a pre-school child.

The mouth-like opening 26 is arrayed with at least an upper lip 34 and a lower lip 36. In this preferred embodiment of the present invention, the mouth-like opening 26 is configured for allowing relative movement between the upper lip 34 and the lower lip 36. In the embodiment shown in Fig. 1, the bottom lip 36 moves in a vertical direction relative to a substantially stationary upper lip 34. The relative movement therebetween simulates a talking mouth. The mouth-like opening 26 preferably is brightly colored in contrast to the body portion 14 so that a pre-school child will detect the movement thereof and be entertained thereby. The mouth-like opening 26 may be molded, shaped and/or decorated to include a tongue-like feature 38. Other additional facial features may be included such as teeth, cheek coloring, etc. It is to be noted that either or both of the lips 34 and 36 may be configured for movement thereof.

The toy 10 of the present invention also includes an electronic circuit 40 which includes the ability for storing signals and generating sound signals therefrom representing at least one phrase of speaking content such as phrases, words etc. The portion of the electronic circuit 40 that stores and generates the sound signals

5 includes a controller/processor 42, an amplifying means 44 and a sound transducer 46 such as a speaker shown schematically in Fig. 3. The electronic circuit 40 preferably is housed interior of the body portion 14. The sound signals 48 emanate from the transducer 46 in response to the selective actuation of an actuable control

10 50. The actuable control 50 may be a limit switch 52 as shown in Fig. 2. In this arrangement the switch 52 would be actuated as and when the lower lip 36 moves. The operation and movement of the lower lip 36 will be discussed below.

Alternatively, the actuable control 50 may be a switch means 56 (push button, key pad or the like) that may placed at a position on the body portion 14, as seen in Fig. 1, so that a user may selectively depress it. However, if it is preferred that the sound

15 48 only be made or heard when the toy 10 is being moved on its wheels 16, the switch 52 may be electrically or electronically connected in series with the switch means 56 for limiting operation to only when the toy 10 is in motion. In a third alternative, the actuable control 50 may be a push button 54 that is mounted on a remote control 55 as depicted in Fig. 3. The controller and/or processor 42

20 preferably includes sequencing capabilities that allows a different stored signal of a plurality of stored messages or signals to be sounded only after the control 50 is actuated. A first of the messages may be repeated after all of the stored messages have been heard.



As previously mentioned, it is preferred that the toy 10 of the present invention includes a powering means 58 such as a motor 18 coupled to the gear train 20, as schematically depicted in Fig. 2. The gear train 20 includes a drive gear 60 and a driven gear 62. The driven gear 62 is coupled to a drive shaft 64 for rotation thereof as and when the motor 18 is operated. A cam 66 is mounted on and coupled to the shaft 64. The cam 66, having at least one lobe or high point, operably abuts a cam follower 68 that is mounted to a lever portion 70 of the lower lip 36. The lever 70 is pivotally connected to a pivot shaft 72. The lever 70 has a gear segment 74, shown in dashed outline, formed thereon. The gear segment 74 meshes with a second gear segment 76 that is formed on an interior portion of each of the eyes 24. It is preferred that a biasing means 78, such as an extension spring, urge the cam follower 68 into abutment with the cam 66. It can be seen that the toy 10 may be moved left (forward) or right (reverse) by the motor 18/gear train 20/wheel 16 combination. During the movement of the toy 10, the rotating cam 66 urges the cam follower 68 and lever 70 to reciprocally pivot about the pivot shaft 72 thereby moving the lower lip 36 while simultaneously moving each eye 24. During the operation of the mouth-like opening 26 and the eyes 24 the sound signals 48 may be selectively provided by the sound transducer 46 upon actuation of the control 50.

Referring to Figs. 1 and 3, the control and operation of the motor 18 and other functions of the toy 10 may be by way of a wireless remote control circuit 80 that includes a signal transmitter 82 and a signal receiver 84 that are also electrically connected to the controller 42. The wireless signals 88 may be sent by way of infrared (IR), radio frequency (RF), or sound. The signal transmitter 82 is enclosed within the remote control 55. The remote control 55 may include a plurality of

actuable control buttons such as 90 (Reverse), 92 (On-Off) and 94 (Forward) in addition to actuable push button 54 (Sound Selector). Actuating either of the buttons 54, 90, 92, 94 sends a signal 88 to the receiver 84. The receiver 84 sends the appropriate signal to the controller 42 which in turn controls the operation of the motor 18 and/or the amplifier 44. It is preferred that the toy 10 have a master ON-OFF switch (not shown) mounted on the vehicle 12 for minimizing battery drain. However the controller 42 may include an automatic sleep feature therein that maximizes battery life. It is to be noted that the housing of the remote control 55 and buttons contained therein and thereon should be color coordinated with coloring like those colors used in molding or finishing of the toy 12 for allowing easy identification by the child or other user.

It is to be noted that the present invention is adaptable to various shapes of movable toys 10. The toy 10 may take the shape of a sports car as seen in Fig. 1 or a truck as seen in Fig. 2. It is also to be noted that the movement of the eyes 24 may be transverse to the direction of the mouth 26 movements by replacing the gear segments 74 and 76 with bevel gears (not shown). The transverse movement requires that the eyes 24 pivot about a vertical axis. It is also to be noted that the direction and rate of relative movement between the eyes 24 and the mouth 26 may be selectively modified by changing the ratio between the gear segments 70 and 76 and/or by adding an idler gear therebetween (not shown).

Directional terms such as "front", "back", "in", "out", "downward", "upper", "lower", "vertical", "horizontal" and the like used in the description herein are applicable to the embodiments shown and described in conjunction with the drawings. These terms are merely used for the purpose of description in connection

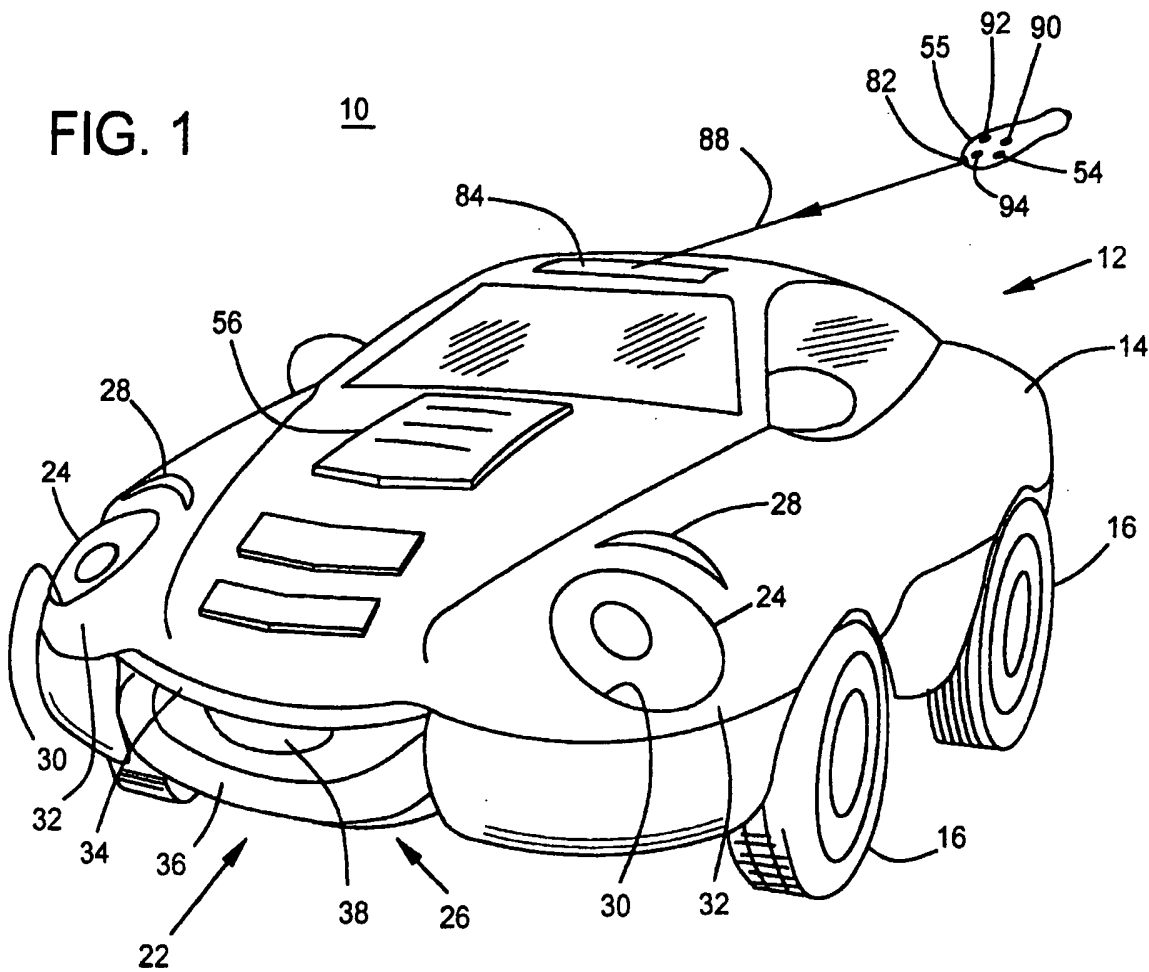
with the drawings, and do not necessarily apply to the position in which the present invention may be used.

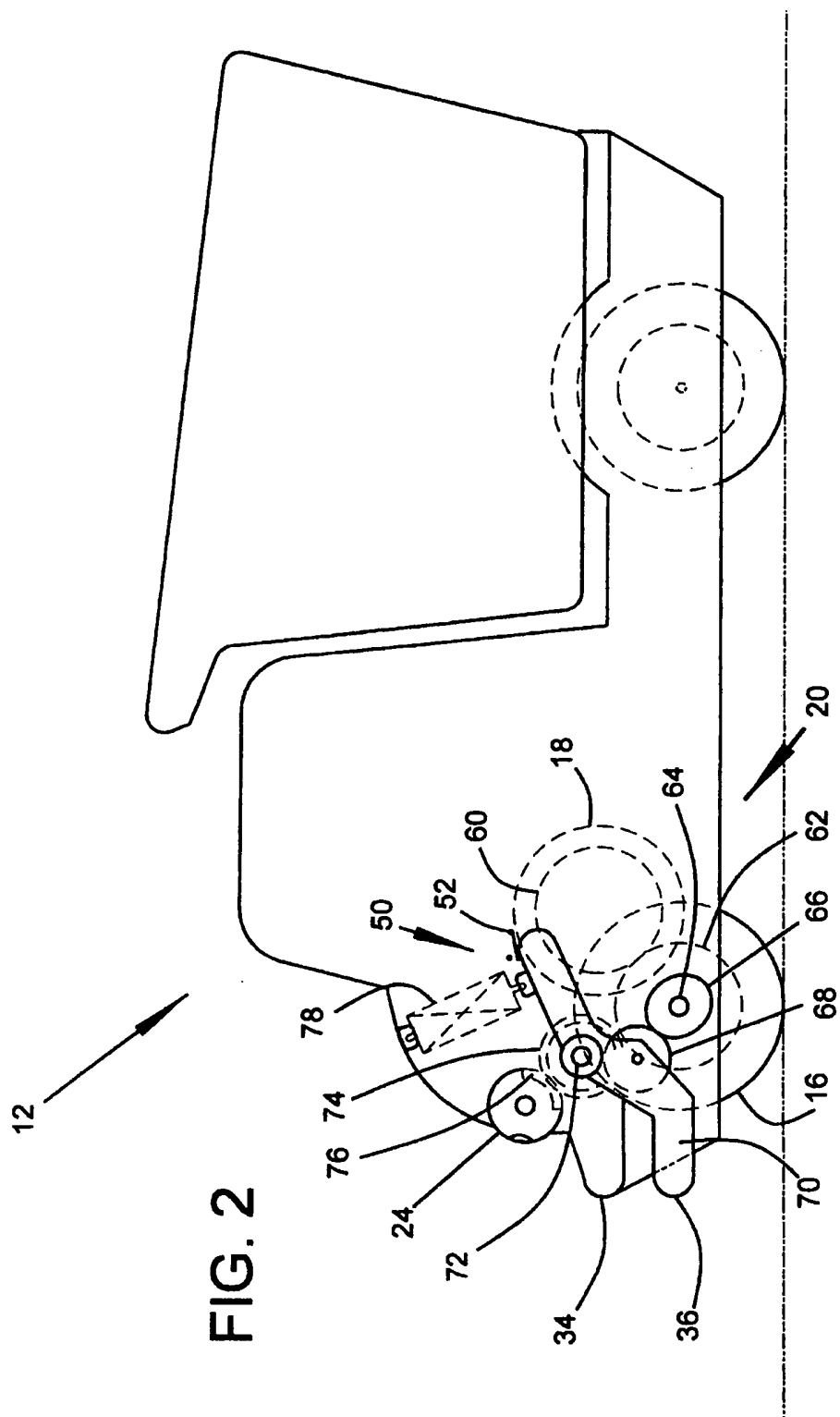
While these particular embodiments of the present invention have been shown and described, it is to be understood that the invention is not limited thereto

5 and protection is sought to the broadest extent that the prior art allows.

## CLAIMS

1. A mobile speaking toy including:
  - a) a body portion supported by a plurality of rotatable wheel members, the body portion including a pair of eye members that are movably  
5 retained in a spaced relationship in the body, each eye member being movable between at least a first position and a second position, the body portion also having a mouth-shaped opening with at least one part being movable between positions defining an open mouth and a closed mouth;
  - b) an electronic circuit which stores and generates sound signals  
10 representing at least one phrase of speaking content;
  - c) a sound transducer coupled to and forming a part of the electronic circuit which sounds the speaking content in audible fashion;
  - d) at least one control coupled to and forming a part of the electronic circuit in response to which the electronic circuit generates the sound  
15 signals; and
  - e) at least one operating means associated with at least one selected wheel of the rotatable wheels, the operating means being operably coupled to each movable eye member the movable part of the mouth-like opening for movement thereof as the at least one selected wheel rotates during movement of the  
20 toy relative to a supporting surface.
2. The toy of claim 1 wherein the electronic circuit in response to the at least one control causes the at least one selected wheel to rotate.





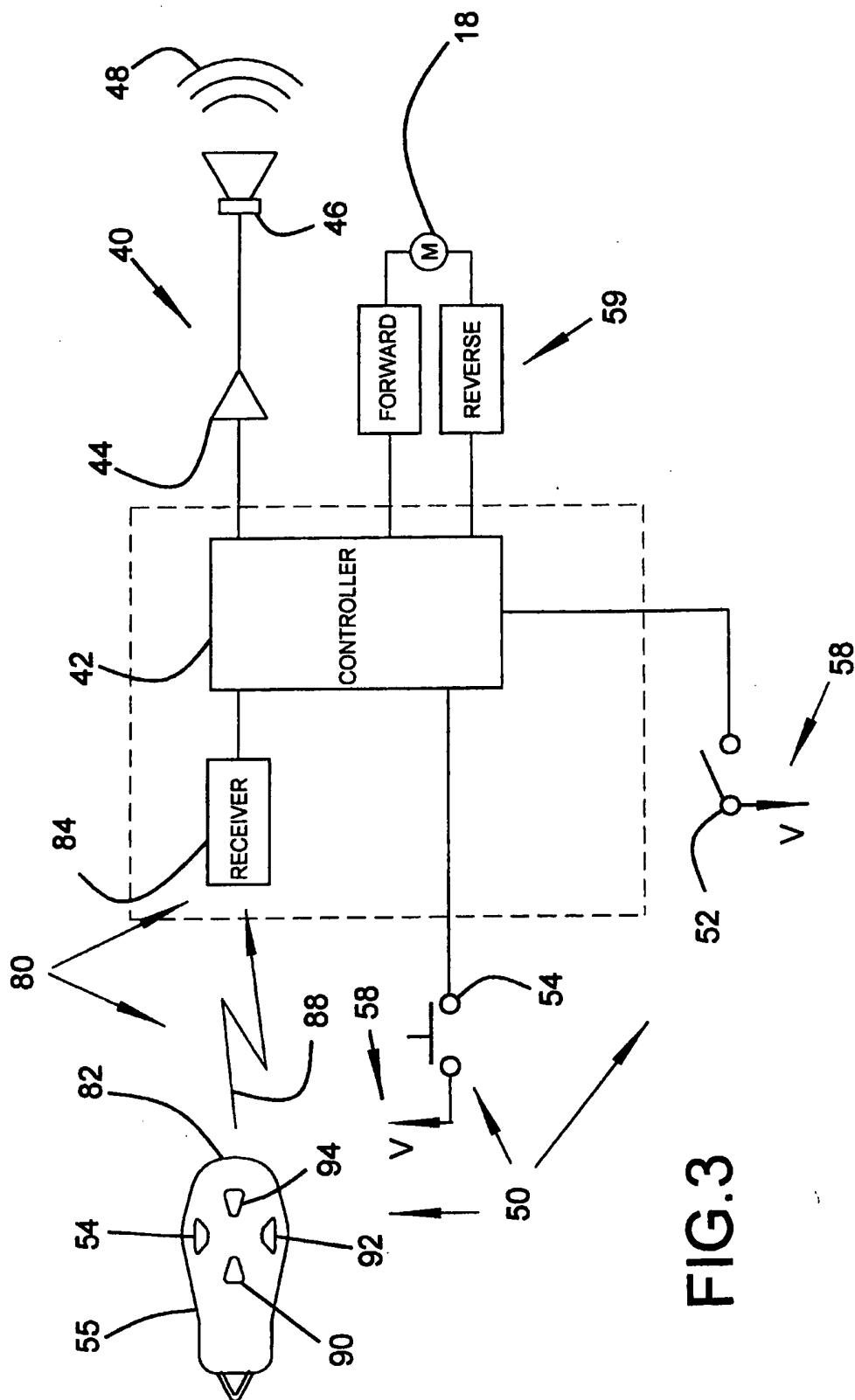



FIG. 3

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/02878

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) :A63H 5/00 US CL :446/409 According to International Patent Classification (IPC) or to both national classification and IPC														
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 446/409,456,457,470,471,175 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) NONE														
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>														
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.												
Y	US 5,292,275 A ( <i>SWISHER et al.</i> ) 08 MARCH 1994, See entire document.	1-2												
Y	US 5,407,376 A ( <i>AVITAL et al.</i> ) 18 APRIL 1995, See col 3, lines 37-col 4, line 5.	1-2												
A	US 4,946,416 A ( <i>STERN et al.</i> ) 07 AUGUST 1990.													
A	US 5,195,920 A ( <i>COLLIER</i> ) 23 MARCH 1993.													
A	US 5,334,078 A ( <i>HIPPELY et al.</i> ) 02 AUGUST 1994.													
A, E	US 6,039,628 A ( <i>KUSMISS et al.</i> ) 21 MARCH 2000.													
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.														
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